

## Focus . . . Leading Causes of Death by Gender

Females have a longer life expectancy than males, and Missourians are no exception. In recent years, that longevity gap has narrowed somewhat. The difference in life expectancy between Missouri males and females decreased slightly between 1980 and 1994, from 7.7 to 6.9 years. The life expectancy for males gained 1.8 years during that time period (from 69.9 to 71.7 years), while females gained only one year (from 77.6 to 78.6 years). The primary reason the longevity gap is narrowing is that smoking-related death rates increased more for females than for males. This article also examines other trends in leading causes of death and how they differ by gender.

Table 1 displays age-adjusted rates by gender for leading causes of death during two recent periods ten years apart. Males have higher age-adjusted death rates for all of the 13 leading causes of death during 1980-1984 as well as 1990-1994. However, the top ten causes of death ranked by number of deaths for the two time periods vary somewhat by gender. The top three leading causes (heart disease, cancer, and stroke, respectively) appear in the same order for both genders in each of the time periods. Chronic lung disease, pneumonia and influenza, and unintentional injuries, the fourth, fifth and sixth leading causes of death in 1990-1994, had those ranks for both sexes during each five year period, but in different orders. Suicide and homicide ranked in the lower half of the top ten for males during both 1980-1984 and 1990-1994, and AIDS ranked tenth for men in the latter period. (It was not recognized as a leading cause of death until 1989.) None of those three causes made the list for women. Accidental deaths also ranked higher for men than for women. On the other hand, atherosclerosis and nephritis and nephrosis were ranked for women, but not for men.

The changes between the decades for individual leading causes of death are generally similar between sexes. For example, age-adjusted death rates for heart disease and atherosclerosis went down, and rates for diabetes and respiratory problems went up. However, a few causes stand out as having changed quite differently by gender. Suicide mortality for males increased 14.3 percent from 1980-1984 to 1990-1994 while female suicide rates decreased 24.9 percent. Changes in other causes of death differed substantially between the genders, although the trend was in the same direction. Such is the case with nephritis and nephrosis, which showed a greater decrease for females (27.2 percent) than males (3.9 percent). Even more dramatically, chronic obstructive pulmonary disease (COPD), increased 64.5 percent for females and only 8.6 percent for males.

The increase in COPD demonstrates the growing effect of smoking on women's mortality, as does the faster increase in mortality for lung cancer among women. Eighty percent of COPD and lung cancer and 30 percent of ischemic heart disease can be attributed to smoking.<sup>1</sup> Those three causes combined show an increase of 72.1 percent for women and an increase of 10.4 percent for men. Lung cancer mortality between the two 5-year time periods increased 51.2 percent for men and 236.3 percent for women, while ischemic heart disease for men decreased 53.9 percent and 18.5 percent for women.

A cohort study by the National Institute of Health<sup>2</sup> describes the differences in smoking patterns between males and females. Prevalence for men peaked at 66.1 percent in 1955 and has declined considerably since then. Currently, men born between 1901 and 1930 include those who have the highest peak prevalence of smoking and greatest cumulative smoking exposure. The majority of lung cancer deaths occur to individuals in this age range. Lung cancer deaths among males began rising sharply in the 1930s, about 20 to 30 years after large numbers of men began smoking. Those men who were born after 1930 have a lower peak prevalence and cumulative smoking exposure than those being replaced. This should result in a decline in the rate of male lung cancer deaths caused by smoking.

For females, the picture is very different. Women began to smoke in substantial numbers just prior to and during World War II which led to an increase in lung cancer deaths about 20-30 years later. Smoking prevalence for women peaked at 43.9 percent in 1965 and has declined modestly since. The peak and cumulative smoking exposures for those women born before 1930 are lower than for those who were born after 1930. Therefore, lung cancer death rates among women are presently continuing to increase. In the more distant future, it is expected that lung cancer mortality rates will eventually begin to decline for women, long after men's rates have done so.

Another way to look at this data is by comparing the ratio between the sexes' age-adjusted death rates (Table 2 and Chart 1). Again we see the different changes in smoking-related deaths: the male to female ratio for smoking-related diseases dropped from 2.58 in 1980-1984 to 1.65 in 1990-1994, and the ratio for COPD dropped from 2.80 to 1.85. For 1990-1994 AIDS had the highest male-to-female ratio (17.35). Suicide deaths were next with a ratio of 5.22, followed by homicides (4.04) and accidental deaths (2.59). This is somewhat different from the ratios during the 1980-1984 time period: homicide (3.79), suicide (3.44), and unintentional injuries (2.75). The male-to-female death ratio for injury causes (homicide, suicide, and unintentional injury) increased between the early 1980s and the early 1990s because the rates decreased 6.2 percent for females but only 0.4 percent for males. Injury causes account for about nine percent of total male deaths but fewer than three percent of all deaths to females.

Females continue to have a longer life expectancy and lower death rates for all leading causes of death and all age groups. Males continue to die at much higher rates for homicides, suicides, accidental deaths, and AIDS, but females are losing some of their lead in longevity, primarily because of a faster increase in mortality for smoking-related causes.

### References:

<sup>1</sup> The percentage estimates were developed by the Michigan Department of Public Health in the basis of the following reports from the Surgeon General on the effects of smoking: *The Health Consequences of Smoking: Cardiovascular Disease*. US Department of Health and Human Services, 1983.

*The Health Consequences of Smoking: Cancer*. US Department of Health and Human Services, 1982.

*The Health Consequences of Smoking: Chronic Obstructive Lung Disease*. US Department of Health and Human Services, 1984.

<sup>2</sup>*Strategies To Control Tobacco Use In The United States: a blueprint for public health action in the 1990s*. US Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute; pages 80-83, October, 1991.

Table 1

**Age-Adjusted Death Rates for the 13 Leading Causes of Death, by Gender in Rank Order by**

**Total Number of Events: Missouri, 1980-1984 and 1990-1994**

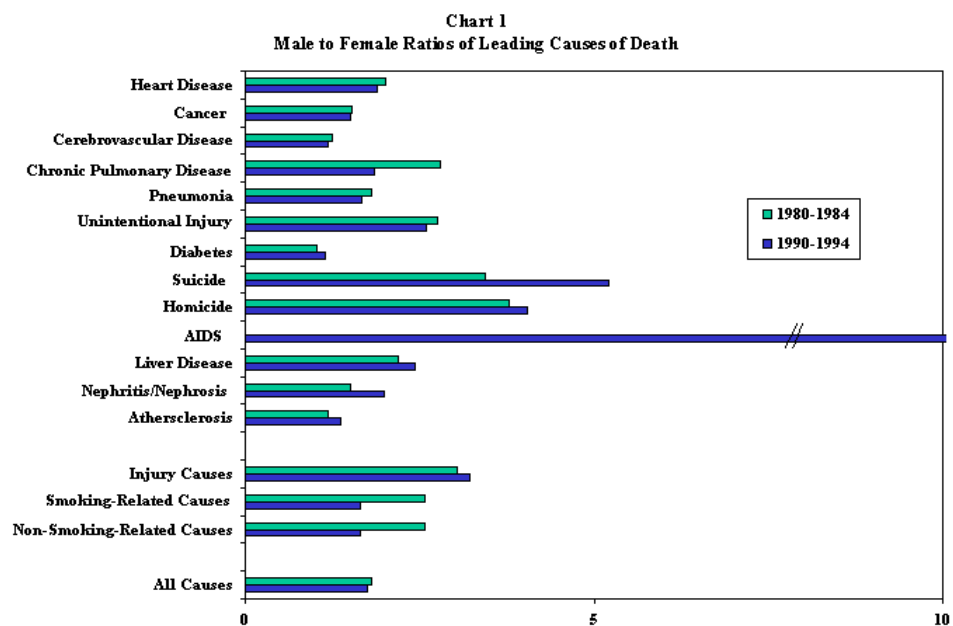
	<i>1980-1984</i>				<i>1990-1994</i>				<i>Percent</i>	<i>Change</i>
	<i>Male</i>		<i>Female</i>		<i>Male</i>		<i>Female</i>		<i>Male</i>	<i>Female</i>
	<i>Rank</i>	<i>Rate</i>	<i>Rank</i>	<i>Rate</i>	<i>Rank</i>	<i>Rate</i>	<i>Rank</i>	<i>Rate</i>		
Heart Disease	1	258.10	1	128.49	1	210.48	1	111.00	-18.5	-13.6
Cancer	2	167.88	2	110.09	2	171.83	2	114.01	+2.4	+3.6
Cerebrovascular Disease	3	41.32	3	33.23	3	30.17	3	25.35	-27.0	-23.7
Chronic Pulmonary Disease	5	28.28	6	10.11	5	30.72	5	16.64	+8.6	+64.5
Pneumonia and Influenza	6	17.30	4	9.48	6	18.28	4	10.90	+5.7	+15.0
Unintentional Injury	4	55.85	5	20.28	4	50.13	6	19.39	-10.2	-4.4
Diabetes	9	8.62	8	8.38	8	12.64	7	10.95	+46.6	+30.7
Suicide	7	18.94		5.51	7	21.64		4.14	+14.3	-24.9
Homicide	8	16.36		4.32	9	19.06		4.72	+16.5	+9.3
AIDS		N/A		N/A	10	14.92		0.86	N/A	N/A
Liver Disease	10	10.56	10	4.78		8.82	10	3.63	-16.5	-24.1
Nephritis/Nephrosis		5.90	9	3.90		5.67	8	2.84	-3.9	-27.2
Atherosclerosis		5.07	7	4.28		2.61	9	1.92	-48.5	-55.1
Injury Causes		91.15		30.11		90.83		28.25	-0.4	-6.2
Smoking Related Causes		132.80		51.56		146.62		88.71	+10.4	+72.1
Non Smoking Related Causes		619.77		362.60		544.81		304.22	-12.1	-16.1
All Causes		752.57		414.16		691.43		392.93	-8.1	-5.1

**Table 2**

**Male to Female Death Ratios Based on the Age-Adjusted Death Rates for the 13 Leading Causes of Death, by Gender: Missouri, 1980-1984 and 1990-1994**

	<i>1980-1984</i>	<i>1990-1994</i>
	<i>Male/Female Death Ratio</i>	<i>Male/Female DeathRatio</i>
Heart Disease	2.01	1.90
Cancer	1.52	1.51
Cerebrovascular Disease	1.24	1.19
Chronic Pulmonary Disease	2.80	1.85

Pneumonia and Influenza	1.82	1.68
Unintentional Injury	2.75	2.59
Diabetes	1.03	1.15
Suicide	3.44	5.22
Homicide	3.79	4.04
AIDS	N/A	17.35
Liver Disease	2.20	2.43
Nephritis/Nephrosis	1.51	2.00
Atherosclerosis	1.18	1.36
Injury Causes	3.03	3.22
Smoking-related deaths	2.58	1.65
Non-smoking-related deaths	1.71	1.79
All Causes	1.82	1.76



### Provisional Vital Statistics for September 1995

Live births decreased in September as 5,688 Missouri babies were born compared with 6,481 in September 1994. The birth rate decreased from 15.4 to 14.1 per 1,000 population between these two periods.

Cumulative births for the 9- and 12-month periods ending with September both show slight decreases. For January-September births totaled 55,313 or 1.4 less than the comparable figure in 1994.

There is little change in the number of Deaths between 1994 and 1995 for any of the three time periods shown in the table below.

The Natural increase for Missouri in September was 1,833 (5,688 births minus 3,855 deaths). The rate of natural increase in September was 4.5 per 1,000 population.

Marriages decreased in September, but show slight increases for the 9- and 12-month periods ending with September.

Dissolutions of marriage show slight increases for all three time periods in the table below.

Infant deaths continue to decrease as the rate for January-September was 7.5 per 1,000 live births compared with 7.9 in 1994.

#### PROVISIONAL RESIDENT VITAL STATISTICS FOR THE STATE OF MISSOURI

Item	September				Jan. - Sept. cumulative				12 months ending with September				
	Number		Rate*		Number		Rate*		Number		Rate*		
	1994	1995	1994	1995	1994	1995	1994	1995	1994	1995	1993	1994	1995
<b>Live Births</b>	6,481	5,688	15.4	14.1	56,067	55,313	14.2	14.0	75,163	74,010	14.5	14.3	14.0
<b>Deaths</b>	3,908	3,855	9.3	9.5	40,267	40,425	10.2	10.3	53,982	53,750	10.1	10.2	10.2
<b>Natural increase</b>	2,573	1,833	6.1	4.5	15,800	14,888	4.0	3.8	21,181	20,260	4.3	4.0	3.8
<b>Marriages</b>	4,401	3,947	10.5	9.8	34,241	34,391	8.7	8.7	44,827	45,220	8.5	8.5	8.5
<b>Dissolutions</b>	2,087	2,125	5.0	5.3	19,905	20,278	5.0	5.1	26,459	26,814	5.0	5.0	5.1
<b>Infant deaths</b>	47	39	7.3	6.9	442	417	7.9	7.5	602	574	8.5	8.0	7.8
<b>Population base</b> (in thousands)	...	...	5,278	5,298	...	...	5,278	5,298	...	...	5,223	5,267	5,293

\*Rates for live births, deaths, natural increase, marriages and dissolutions are computed on the number per 1000 estimated population. The infant death rate is based on the number of infant deaths per 1000 live births. Rates are adjusted to account for varying lengths of monthly reporting periods.

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